I Want to Know More

A Leadership in Action Supplement

I Want to Know More is a selection of information and resources for education leaders, parents, and community members who want to learn more about the teaching and learning strategies taking place in today's most innovative high schools.

What Are Real-World Learning Experiences? (And How Can We Assess Them?)

In today's world, relevance, usefulness, and real-world application need to inform every dimension of the high school experience. More and more educators, professors, employers, and experts are arguing that the ability to communicate effectively, solve complex problems, speak compellingly in public, collaborate productively in a group, or master today's technological tools are among the handful of vitally important skills that will define success, employability, and competitiveness in the 21st century.

Traditional tests typically measure content knowledge, factual recall, and...a student's ability to take tests. While tests will continue to be an important way for teachers to determine what students have learned, additional assessment methods—including strategies such as ***portfolios*** (collections of student work samples that show student progress over time), ***performance exhibitions*** (presentations or other events in which students demonstrate what they have learned), ***digital assessments*** (applications that allow students to meet learning standards at their own pace), and ***rubrics*** (tools that help teachers consistently evaluate different kinds of student work against the same common high standards)—are redefining how schools evaluate and respond to student performance and learning needs.

Something to Think About

The first version of the IQ test was created by Alfred Binet (1857-1911), a psychologist employed by the French government to develop a test that would determine whether students had developmental disabilities or acute learning needs that required additional assistance or specialized support in school. In other words, the original IQ test was designed to identify abnormally low intelligence so educators could provide specialized instruction and support to those students—it was not designed to identify abnormally high intelligence or coronate genius. Binet was also very forthcoming about the limitations of his test, pointing out that the remarkable diversity of human intelligence could not be reduced to a numerical score. Binet also emphasized that intellectual and academic abilities developed at different rates and could be heavily influenced by environmental factors such as family income, social status, or educational background—in other words, intelligence was not exclusively genetic.

Despite the beliefs and arguments of its inventor, the original Binet-Simon test (it was also named after Binet's colleague and collaborator, Theodore Simon) became the foundation of Americanized IQ testing, which is still based today on the Stanford-Binet Intelligence Scale. The popularity of IQ tests in the United States also gave rise to "standardized tests," such as the original Scholastic Aptitude Test (now known as the SAT), which generally sought to identify and reward intellectual strengths, not diagnose individual learning weaknesses to inform instructional support. Even though Binet's work became the foundation of America's modern testing culture, the goals and applications of many standardized tests contradict much of Binet's beliefs, not to mention the intention of his original test. Ironically, it looks increasingly like the future of student assessment in the United States will return us to the ideas that a French psychologist advocated more than a century ago. Have we been on a century-long detour?

Authentic Learning: Teaching Real-World Skills

The education community has a term for the teaching of real-world skills—it's called "authentic learning." In a word, authentic learning is "learning by doing." It's learning that engages students in the investigation of real issues in real-life contexts. Students don't just read about social issues, they go out into their community and volunteer. Students don't just turn in a paper to their teacher—they present their work to community members, publish in the local newspaper, and contribute to real-world research, conversations, or solutions. Scientific concepts, for example, are learned while observing the natural world, working alongside real scientists, and conducting experiments designed to find answers to actual scientific problems—not just classroom-based laboratory "experiments" that are designed to produce a "right" answer and that largely entail following directions from a textbook. Authentic learning is based on the belief that students will be more engaged, and that learning will be more effective and memorable, when students tackle the kinds of tricky, complex, *authentic* problems that do not always have clear answers—just like life. If the solution can be found in the back of the book, or the answer is A, B, or C, then chances are it's not authentic learning. To read more, the following resources provide a brief introduction to authentic learning:

What Do We Mean by Authentic Learning?

The Four Characteristics of "Authentic Learning"

Authentic Learning for the 21st Century: An Overview

Why Today's Students Value Authentic Learning

Survival Skills: Listening to Professors and Employers

Tony Wagner, author of *The Global Achievement Gap: Why Even Our Best Schools Don't Teach the New Survival Skills Our Children Need—And What We Can do About It*, has pointed to two particularly revealing studies: surveys of college professors and surveys of employers. Wagner sees a remarkable overlap in what professors want incoming students to know and the skills that employers want new hires to possess. Wagner's "Seven Survival Skills" for today's teenagers are *critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information*, and *curiosity and imagination*. But, ironically, these are the very skills that college freshman and young workers often lack. Wagner suggests that if we want to know what adolescents should be learning in our high schools, we should listen to the people who will be teaching them and employing them after they graduate. Here are a few national surveys that reveal the kinds of skills employers, college instructors, and teachers want their students to possess:

Primary Sources: America's Teachers on America's Schools (2010)

American Management Association 2010 Critical Skills Survey

ACT 2009 National Curriculum Survey

How Well Are Students Prepared for College? The Perception Gap Between High-School Teachers and College Professors (2008)

How Should Colleges Assess And Improve Student Learning? Employers' Views On The Accountability Challenge (2008)

Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce (2006)

Rising to the Challenge: Are High School Graduates Prepared for College and Work? (2005)

The 2004-2005 Higher Education Research Institute Faculty Survey

Standards and Legislation Supporting Real-World Skills

Real-world skills—also called "21st century" skills—are already supported or required by existing policies in Connecticut, Maine, New Hampshire, Rhode Island, and Vermont. Below are a selection of standards that support the teaching of real-world skills.

New England's Accreditation Standards

The New England Association of Schools and Colleges (NEASC) is the Northeast's regional accrediting organization for schools and colleges, which means that NEASC periodically conducts a comprehensive review of more than 2,000 educational institutions across New England to determine whether they meet expected standards for quality and performance. In 2011, NEASC's Commission on Public Secondary Schools adopted a revised set of accreditation standards that directly address the critical importance of teaching real-world skills in high school:

The curriculum is purposefully designed to ensure that all students practice and achieve each of the school's 21st century learning expectations.

The curriculum is written in a common format that includes:

- *Units of study with essential questions, concepts, content, and skills*
- *The school's 21st century learning expectations*
- *Instructional strategies*
- *Assessment practices that include the use of school-wide analytic and course-specific rubrics*

The curriculum emphasizes depth of understanding and application of knowledge through:

- *Inquiry and problem-solving*
- *Higher order thinking*
- *Cross-disciplinary learning*
- *Authentic learning opportunities both in and out of school*
- *Informed and ethical use of technology*

Teachers' instructional practices are continuously examined to ensure consistency with the school's core values, beliefs, and 21st century learning expectations.

Teachers' instructional practices support the achievement of the school's 21st century learning expectations by:

- *Personalizing instruction*
- *Engaging students in cross-disciplinary learning*
- *Engaging students as active and self-directed learners*
- *Emphasizing inquiry, problem-solving, and higher order thinking*
- *Applying knowledge and skills to authentic tasks*
- *Engaging students in self-assessment and reflection*
- *Integrating technology*

Connecticut's Common Core

Connecticut's Common Core of Learning (adopted by the legislature in 1997 and revised in 1998), and the accompanying Connecticut Framework K-12 Curricular Goals and Standards, established clear expectations for what Connecticut's high school graduates need to know and be able to do. In 2010, Connecticut adopted the Common Core State Standards in English language arts and mathematics, which replaced the state's existing learning expectations in those disciplines (Note: Maine, New Hampshire, Rhode Island, and Vermont have also adopted the Common Core State Standards). The

original Common Core of Learning includes 21st century learning expectations that transcend particular content areas and reflect the real-world skills students will need to succeed in college and work:

Foundational Skills and Competencies

- *Reading*
- *Writing*
- *Speaking, listening, and viewing*
- *Quantifying*
- *Problem solving, reasoning, and creative thinking*
- *Learning resources and information technology*
- *Working independently and collaboratively*

Aspects of Character

- *Responsibility and integrity*
- *Effort and persistence*
- *Intellectual curiosity*
- *Respect*
- *Citizenship and sense of community*

Maine's Guiding Principles

The State of Maine Learning Results: Parameters for Essential Instruction (adopted by the legislature in 1997 and revised in 2007) identify the essential knowledge and skills students need to leave high school prepared for work, higher education, citizenship, and personal fulfillment. In addition to subject-area standards, the Learning Results include a set of Guiding Principles that require schools to ensure that every student who receives a diploma is:

A clear and effective communicator *who demonstrates organized and purposeful communication in English and at least one other language; uses evidence and logic appropriately in communication; adjusts communication based on the audience; and uses a variety of modes of expression (spoken, written, and visual and performing including the use of technology to create and share the expressions).*

A self-directed and lifelong learner *who recognizes the need for information and locates and evaluates resources; applies knowledge to set goals and make informed decisions; applies knowledge in new contexts; demonstrates initiative and independence; demonstrates flexibility including the ability to learn, unlearn, and relearn; demonstrates reliability and concern for quality; and uses interpersonal skills to learn and work with individuals from diverse backgrounds.*

A creative and practical problem solver *who observes and evaluates situations to define problems; frames questions, makes predictions, and designs data/information collection and analysis strategies; identifies patterns, trends, and relationships that apply to solutions; generates a variety of solutions, builds a case for a best response and critically evaluates the effectiveness of the response; sees opportunities, finds resources, and seeks results; uses information and technology to solve problems; and perseveres in challenging situations.*

A responsible and involved citizen *who participates positively in the community and designs creative solutions to meet human needs and wants; accepts responsibility for personal decisions and actions; demonstrates ethical behavior and the moral courage to sustain it; understands and respects diversity; displays global awareness and economic and civic literacy; and demonstrates awareness of personal and community health and wellness.*

An integrative and informed thinker *who gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology; evaluates and synthesizes information from multiple sources; applies ideas across disciplines; and applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes.*

New Hampshire's Competency-Based Assessment System

In 1998, the New Hampshire Department of Education sponsored a pilot program in which high schools helped design the Competency-Based Assessment system, which is now being implemented across the state. The system is a whole-school, classroom-applied system that encourages project-based learning and other strategies to engage a wide variety of student learning styles and address individual learning needs. The system identifies ten core competencies, which include the following interdisciplinary skills in addition to proficiency in English, mathematics, science, social studies, and the arts:

Problem solving and decision making: *the student will make developmentally appropriate decisions and will use problem-solving strategies to investigate information and gain understanding in a variety of settings.*

Self-management: *the student will demonstrate individual qualities such as responsibility, the ability to manage one's time and conduct, integrity, respect for self and others, flexibility, confidence, and a willingness to explore.*

Communication skills: *the student will use a variety of methods, including writing, speaking and discussing, visual aides or video/audio representations, appropriate to the purpose and audience, to communicate effectively.*

Ability to work with others: *the student will work effectively with others, including people from diverse backgrounds, and contribute to group efforts by sharing ideas, suggestions, and workloads.*

Information use (technology, research, analysis): *the student will use information-gathering techniques in collecting, analyzing, organizing, and presenting information.*

Rhode Island's Applied Learning Skills

Rhode Island's Regulations of the Board of Regents for Elementary and Secondary Education, which were updated in 2011, created the Rhode Island Applied Learning Skills, which encompass communication, problem-solving, critical thinking, research, reflection and evaluation, and collaboration.
The Applied Learning Skills are embedded in Rhode Island's High School Diploma System and are integrated into course work, multiple-pathway learning options, and performance-based assessments such as portfolios and exhibitions. Students are expected to demonstrate the following applied-learning skills as part of the demonstrations of proficiency in English language arts, mathematics, science, social studies, technology, and the arts that are required for graduation:

Communication: *the student uses a variety of means to communicate effectively and questions, informs, and learns from others.*

Problem solving: *the student formulates core questions and concerns about topics or areas of interest and organizes and conducts a process to create an intellectual or physical product, hold an event, conduct a process, or otherwise move towards the solution of the identified issue or problem.*

Critical thinking: *the student analyzes a piece of work, process, or other product for completeness and looks for possible opportunities for expansion of ideas, products, procedures, etc.*

Research: *the student uses information tools and technology to learn and deepen his or her*

understanding about a topic or area of interest and is able to make decisions about the validity of the information presented.

Reflection and evaluation: *the student reviews and thinks critically about their activities and goals and makes necessary revisions and plans for the future.*

Collaboration: *the student is able to work with others to complete projects using communication and teamwork skills that ensures a collective effort to effectively meet work expectations and timelines.*

Vermont's Vital Results

The Vermont Framework of Standards and Learning Opportunities, which was adopted by Vermont's State Board of Education in 1997 and revised in 2000, includes the Vital Results, a set of learning standards that reflect the critical skills need in all subject areas and fields of knowledge:

Communication

- *Reading: reads to understand and reads critically, to interpret a variety of materials*
- *Writing: writes effectively for a variety of purposes*
- *Listening: listens actively for a variety of purposes*
- *Expression: expresses self with power and purpose*
- *Information technology/information literacy: uses the tools of information technology to communicate*

Reasoning and Problem Solving

- *Questioning: asks meaningful questions*
- *Problem solving: chooses and uses effective means of solving problems*
- *Approach: approaches problem solving with an open mind, healthy skepticism, and persistence*
- *Abstract and creative thinking: thinks abstractly and creatively*

Personal Development

- *Worth and competence: develops a sense of unique worth and personal competence*
- *Healthy choices: makes healthy choices*
- *Making decisions: makes informed decisions*
- *Relationships: develops productive and satisfying relationships with others*
- *Workplace: demonstrates the skills necessary to participate in the workplace*

Civic and Social Responsibility

- *Service: learns by serving others, and participates in democratic processes*
- *Human diversity: respects and values human diversity as part of our multi-cultural society and world*
- *Change: understands continuity and changes*

Still Want to Know More?

If you are interested in the foundational research behind many of the ideas discussed in the Leadership in Action series, we recommend our Global Best Practices Research Summary, which is available on the New England Secondary School Consortium website or the engaging report *Changing the Odds for Student Success: What Matters Most* by McREL and the Stupski Foundation.